ABSTRACT OF THE DISCLOSURE

A mass measurement apparatus with an excitation circuit is provided to forcibly excite a piezoelectric vibration reed. The excitation circuit comprises a PLL circuit including a voltage controlled oscillation circuit outputting an excitation signal to the reed and a phase comparator via a distributor. The phase comparator outputs a signal corresponding to a phase difference between an output signal of the reed and the excitation signal. The signal is passed through a loop filter to be converted to a direct-current voltage and supplied to the oscillator as a control voltage. The oscillator has an oscillation frequency varying according to the control voltage, outputs the excitation signal with no phase difference with respect to the output signal of the reed, and causes the reed to resonate. A signal processing unit counts the output frequency of the oscillator and calculates the resonance frequency of the reed.